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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/060,066	01/29/2002	Alejandro Abuin	LEX-0304-USA	8417

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EXAMINER	
BERTOGLIO, VALARIE E	
ART UNIT	PAPER NUMBER
1632	

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/060,066	ABUIN ET AL.	
	Examiner	Art Unit	
	Valarie Bertoglio	1632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 April 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01/29/2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/23/2004 has been entered. Claims 1-7 are pending and under consideration in the instant office action.

Claim Rejections - 35 USC § 101/ 112

Definitions:
[from REVISED INTERIM UTILITY GUIDELINES TRAINING MATERIALS; repeated from http://www.uspto.gov/web/menu/utility.pdf]

"Credible Utility" - Where an applicant has specifically asserted that an invention has a particular utility, that assertion cannot simply be dismissed by Office personnel as being "wrong". Rather, Office personnel must determine if the assertion of utility is credible (i.e., whether the assertion of utility is believable to a person of ordinary skill in the art based on the totality of evidence and reasoning provided). An assertion is credible unless (A) the logic underlying the assertion is seriously flawed, or (B) the facts upon which the assertion is based is inconsistent with the logic underlying the assertion. Credibility as used in this context refers to the reliability of the statement based on the logic and facts that are offered by the applicant to support the assertion of utility. A *credible* utility is assessed from the standpoint of whether a person of ordinary skill in the art would accept that the recited or disclosed invention is currently available for such use. For example, no perpetual motion machines would be considered to be currently available. However, nucleic acids could be used as probes, chromosome markers, or forensic or diagnostic markers. Therefore, the credibility of such an assertion would not be questioned, although such a use might fail the *specific* and *substantial* tests (see below).

"Specific Utility" - A utility that is *specific* to the subject matter claimed. This contrasts with a *general* utility that would be applicable to the broad class of the invention. For example, a claim to a polynucleotide whose use is disclosed simply as a "gene probe" or "chromosome marker" would not be considered to be *specific* in the absence of a disclosure of a specific DNA target. Similarly, a general statement of diagnostic utility, such as diagnosing an unspecified disease, would ordinarily be insufficient absent a disclosure of what condition can be diagnosed.

"Substantial utility" - a utility that defines a "real world" use. Utilities that require or constitute carrying out further research to identify or reasonably confirm a "real world"

context of use are not substantial utilities. For example, both a therapeutic method of treating a known or newly discovered disease and an assay method for identifying compounds that themselves have a "substantial utility" define a "real world" context of use. An assay that measures the presence of a material which has a stated correlation to a predisposition to the onset of a particular disease condition would also define a "real world" context of use in identifying potential candidates for preventive measures or further monitoring. On the other hand, the following are examples of situations that require or constitute carrying out further research to identify or reasonably confirm a "real world" context of use and, therefore, do not define "substantial utilities":

A. Basic research such as studying the properties of the claimed product itself or the mechanisms in which the material is involved.

B. A method of treating an unspecified disease or condition. (Note, this is in contrast to the general rule that treatments of specific diseases or conditions meet the criteria of 35 U.S.C. 101.)

C. A Method of assaying for or identifying a material that itself has no "specific and/or substantial utility".

D. A method of making a material that itself has no specific, substantial, and credible utility.

E. A claim to an intermediate product for use in making a final product that has no specific, substantial, and credible utility.

Note that "throw away" utilities do not meet the tests for a *specific* or *substantial* utility. For example, using transgenic mice as snake food is a utility that is neither specific (all mice could function as snake food) nor substantial (using a mouse costing tens of thousands of dollars to produce as snake food is not a "real world" context of use). Similarly, use of any protein as an animal food supplement or a shampoo ingredient are "throw away" utilities that would not pass muster as specific or substantial utilities under 35 U.S.C. 101. This analysis should, of course, be tempered by consideration of the context and nature of the invention. For example, if a transgenic mouse was generated with the specific provision of an enhanced nutrient profile, and disclosed for use as an animal food, then the test for specific and substantial *asserted* utility would be considered to be met.

"Well established utility" - a specific, substantial, and credible utility which is well known, immediately apparent, or implied by the specification's disclosure of the properties of a material, alone or taken with the knowledge of one skilled in the art. "Well established utility" does not encompass any "throw away" utility that one can dream up for an invention or a nonspecific utility that would apply to virtually every member of a general class of materials, such as proteins or DNA. If this is the case, any product or apparatus, including perpetual motion machines, would have a "well established utility" as landfill, an amusement device, a toy, or a paper weight; any carbon containing molecule would have a "well established utility" as a fuel since it can be burned; any protein would have well established utility as a protein supplement for animal food. This is not the intention of the statute.

See also the MPEP § 2107 - 2107.02.

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-7 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility.

This rejection is maintained for reasons of record as stated on pages 2-5 of the prior office action mailed 10/21/2003.

Applicant's arguments are not persuasive. Applicant argues the claimed isolated mouse embryonic stem cells can be used to generate transgenic mice comprising a disruption in SEQ ID NO:2. Applicant argues that said mice, which display hyperactivity, are medically important and can be used to develop new pharmaceutical products. Applicant also argues that SEQ ID NO:2 encodes a mouse homolog of the human CACNG8 gene as demonstrated by Exhibit A.

In response, with respect to the utility of the claimed totipotent mouse ES cells, Applicant's argument is only relevant to claim 7 as claims 1-6 are so broad as to encompass other cell types that can not be used to generate a mouse. Furthermore, the mouse derived from ES cells comprising an engineered mutation in a gene corresponding to SEQ ID NO:2, as recited in the amendment received 04/23/2004, page 3, paragraph 1, is not described in the specification of the instant invention. Without having the animal derived from ES cells comprising an engineered mutation in a gene corresponding to SEQ ID NO:2 on the record, it cannot be

assumed or predicted that the animals display a phenotype of hyperactivity or any other phenotype and thus, applicants' arguments do not support a use for the claimed ES cells. Further experimentation is required to determine what the direct or indirect effects of mutating the gene corresponding to SEQ ID NO: 2 will be on either the ES cell or subsequent mouse made using the ES cell. Thus, the evidence of record fails to support the asserted utility of the claimed ES cells. Applicants have failed to point to a specific or substantial utility for the claimed invention and have failed to provide evidence of the phenotype asserted on page 3, paragraph 1 of the Amendment received 04/23/2004. The claimed invention does not have a substantial utility because the specification does not show how to use the claimed cells without resorting to further research to determine the function of the gene whose expression is reduced in the claimed cell.

With respect to Applicant's arguments that SEQ ID NO:2 encodes the CACNG8 gene, Exhibit A could not be located with Applicant's response dated 04/23/2004 or any previous filings of record. Applicant cites GenSeq Accession Number Y84372, however, this listing could not be accessed. Therefore, without any teachings in the specification with respect to the identity of SEQ ID NO:2, without evidence more than purported homology to a human gene supporting that it actually encodes CANCG8, and without any data regarding the functional activity of SEQ ID NO:2, the utility of a knockout mouse or totipotent ES cell line, or any other cell comprising a disruption in SEQ ID NO:2 is not apparent. The evidence of record at the time the claimed invention was filed, had not disclosed the identity or function of a gene comprising SEQ ID NO:2. Applicant argues that SEQ ID NO:2 encodes the murine ortholog of a human gene encoding the human calcium channel, voltage-dependent, gamma subunit 8 (CACNG8) gene.

However, the evidence of record at the time the invention was made does not disclose the identity or function of the gene and the identity or function of the gene or gene product cannot be established post-filing. Therefore, the specification fails to support that SEQ ID NO:2 encodes the murine ortholog of CACNG8.

It is maintained that the claimed mouse ES cell lines lack a specific and substantial utility until the gene is further characterized and identified as to its function. No genotype or phenotype of record is associated with SEQ ID NO:2. No gene function (or disruption thereof) is disclosed for any gene comprising the nucleotide sequence set forth in SEQ ID NO:2. The claimed product cannot be considered a research tool but rather is a material to be experimented upon.

Claims 1-7 are also rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant

art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant argues that "there can be no scientifically credible assertion that the Applicants were not IN ACTUAL POSSESSION of the claimed invention" (see paragraph bridging pages 6-7 of Applicant's response dated 04/23/2004). Applicant states that those skilled in the art knew of the CACNG sequence and could have thus determined that the described ES cell line contained a mutation in a murine homolog of the CACNG locus by virtue of its structural similarity too the sequence present in SEQ ID NO:2 (page 7, paragraph 2 of Applicant's response dated 04/23/2004).

In response, Claim 1 encompasses a gene "identifiable as corresponding to SEQ ID NO:2". As it is not apparent that SEQ ID NO: 2 is a complete cDNA sequence, the claims read on all cells that have a disruption of any gene comprising an undescribed sequence. The claims are broad and encompass more than the single cell line described in the specification. A gene "identifiable as corresponding to SEQ ID NO:2" encompasses a large genera of sequences of which each of the encompassed sequences merely comprises SEQ ID NO:2 or merely "corresponds to" SEQ ID NO:2 in addition to other undescribed sequences that make up the claimed genus. The phrase "corresponding to SEQ ID NO:2" fails to limit the sequences encompassed by the claims. For example, any random nucleic acid sequence of any length could "correspond to SEQ ID NO:2" as both sequences are similar and corresponding as they are both made of nucleotides. There is no evidence of record of a relationship between the structure of any gene and the sequence set forth in SEQ ID NO: 2 that would provide any reliable information about the structure of any gene within the genus. There is no evidence on the record

that the nucleotide sequence set forth by SEQ ID NO: 2 had a known structural relationship to any gene sequence. In view of the above considerations, one of skill in the art would not recognize that applicant was in possession of the necessary common features or attributes possessed by a member of the genus because partial coding sequence as set forth by SEQ ID NO: 2 is not representative of any gene within the claimed genus. Many, if not most, of the sequences encompassed may not be real sequences corresponding to real genes. The claims require that one of ordinary skill in the art produce cell lines that comprise a disruption of a gene whose sequence may not exist in nature. The skilled artisan cannot envision the detailed chemical structures of all the sequences encompassed by the above noted SEQ ID NO: 2.

Conclusion

No claim is allowed.

All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Valarie Bertoglio whose telephone number is (571) 272-0725. The examiner can normally be reached on Mon-Thurs 5:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson can be reached on (571) 272-0804. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Valarie Bertoglio
Examiner
Art Unit 1632

Deborah Crouch

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PRIMARY EXAMINER
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